

1/2 040 UNCLASSIFIED PROCESSING DATE--090CT70  
TITLE--ESTIMATION OF THE REPEATABILITY OF STRENGTH OF STRUCTURAL  
FIBERGLASS PLASTICS IN CONICAL SHELLS -U-  
AUTHOR-(03)-IVONIN, YU.N., DUSHIN, M.I., NESTEROVSKIY, N.V.  
COUNTRY OF INFO--USSR  
SOURCE--MEKhanika POLIMEROV, VOL. 6, JAN.-FEB. 1970, P. 102-108  
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, PHYSICS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--FIBERGLASS, PLASTIC MECHANICAL PROPERTY, COMPOSITE MATERIAL,  
PLASTIC FABRICATION, CONIC SHELL, MECHANICAL STRENGTH, CONSTRUCTION  
MATERIAL, STATISTIC ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAme--1992/1891

STEP NO--08/0374/70/006/000/0102/0108

CIRC ACCESSION NO--AP0112871

UNCLASSIFIED

2/2 040

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0112871

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COMPARISON OF THE MECHANICAL PROPERTIES OF FIBERGLASS REINFORCED COMPOSITES HAVING A SHAPE OF CONICAL SHELLS, AND FABRICATED UNDER LABORATORY AND INDUSTRIAL CONDITIONS. THE TECHNIQUE OF THE IMPREGNATION OF A DRY PACKAGE UNDER PRESSURE IN A CLOSED MOLD IS USED. ON THE BASIS OF A STATISTICAL ANALYSIS OF THE EXPERIMENTAL DATA A SUBSTANTIAL DIFFERENCE IS DEMONSTRATED BETWEEN THE STRENGTHS OF SHELLS MADE UNDER LABORATORY AND INDUSTRIAL CONDITIONS.

UNCLASSIFIED

I/2 009 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--EFFECT OF GIBBERELLIN AND FERTILIZERS ON THE ACTIVITY OF NATURAL  
GIBBERELLIN LIKE SUBSTANCES OF SCOTCH PINE REGENERATIVE ORGANS -U-  
AUTHOR--IVONIS, I.YU.  
COUNTRY OF INFO--USSR  
SOURCE--AGROKHIMIYA 1970, (4), 111-14  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--GIBBERELLIC ACID, CHEMICAL FERTILIZER, PLANT PHYSIOLOGY  
  
CONTROL MARKING--NO RESTRICTIONS  
  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3001/1623 STEP NO--UR/0485/70/000/004/0111/0114  
CIRC ACCESSION NO--AP0127114  
UNCLASSIFIED

2/2 009 UNCLASSIFIED PROCESSING DATE--27NOV70  
CIRC ACCESSION NO--AP0127114  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. GIBBERELIC ACID (0.01PERCENT)  
INCREASED THE ACTIVITY OF NATURAL GIBBERELLIN LIKE SUBSTANCES (GLS) IN  
THE ANTHERS OF SCOTCH PINE AND DECREASED IT IN THE POLLEN. FERTILIZERS  
(N, P, AND K MIXT.) ALONE OR COMBINED WITH GIBBERELIC ACID SOMEWHAT  
DECREASED GLS ACTIVITY IN THE ANTHERS AND INCREASED IT IN THE POLLEN.  
GIBBERELLIN AND THE FERTILIZERS SIGNIFICANTLY INCREASED THE ACTIVITY OF  
NATURAL GLS IN THE BUDS OF SCOTCH PINE. FACILITY: INST. LESA,  
PETROZAVODSK, USSR.

UNCLASSIFIED

USSR

UDC: 624.04:534.13

IVOVICH, V. A. (Moscow)

"Interdependence During Oscillation of Nonlinear Vibration-Free Systems"

Moscow, Stroitel'naya Mekhanika i Raschet Sooruzheniy, No 2 (80), 1972, pp 11-15

**Abstract:** The author studies the interaction of the individual, partial systems of nonlinear vibration isolation during oscillation. Conditions are determined where the nonlinear relationships have a major effect on the oscillation of various vibration isolation schemes. In such an instance, nonconsideration of the nonlinear factors can result in a discrepancy between the actual amplitudes of the oscillations and those calculated. Under such circumstances, oscillations of a vibration-free system can occur at a frequency which is different from the frequency of the disturbance effect. This must be considered in the design of vibration insulation. The author concludes that if the disturbance frequency and the partial frequencies are such that  $\omega \approx \sqrt{\alpha_1} \approx \sqrt{\alpha_2}$ , then resonance oscillations occur simultaneously along the x and y coordinates in this type of vibration-free system. Original article: five figures, 22 formulas, and six bibliographic entries.

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USSR

UDC 575.851.55.093.2

AZOVA, L. G., GUZEV, M. V., and IVOYLOV, V. S., Chair of Microbiology, Soil Biology Faculty, Moscow State University imeni M. V. Lomonosov

"The Response of Some Clostridia to Molecular Oxygen"

Moscow, Mikrobiologiya, Vol 39, No 1, Jan/Feb 70, pp 55-59

Abstract: The response to molecular and Cl. butyricum oxygen of some strains of Clostridium Saccharobutricum which are usually treated as strict anaerobes, was studied. The dynamics of oxygen intake by the bacterial cells and the possibility of bacterial development under constant (and even forced) oxygen enrichment of the culture medium were investigated. Various strains of Clostridium saccharobutricum and Clostridium butyricum were used in the experiments. Oxygen threshold concentrations were determined and consumption of oxygen, dissolved in the culture fluid was studied during the lag phase. Tables are presented showing the oxygen threshold concentrations for development of Clostridium strains and the oxygen intake and lag phase length in relation to initial oxygen content  
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USSR

AZOVA, L. G., et al., Moscow, Mikrobiologiya, Vol 39, No 1, Jan/  
Feb 70, pp 55-59

in the medium. The so-called obligate anaerobic property of this bacterial group was found to vary quantitatively and qualitatively in different strains. It is concluded that none of the strains investigated is actually an obligate anaerobe.

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1/2 022 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--THE RESPONSE OF SOME CLOSTRIDIUM BACTERIA TO MOLECULAR OXYGEN -U-

AUTHOR--(03)-AZOVA, L.G., GUSEV, M.V., IVOYOV, V.S.

CCOUNTRY OF INFO--USSR

SOURCE--MIKROBIOLOGIYA, 1970, VOL 39, NR 1, PP 55-59

DATE PUBLISHED--70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CLOSTRIDIUM, CULTURE MEDIUM, OXYGEN CONSUMPTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1990/1410

STEP NO--UR/0220/70/039/001/0055/0059

CIRC ACCESSION NO--AP0109472

UNCLASSIFIED



2/2 022

UNCLASSIFIED

PROCESSING DATE---13NOV70

CIRC ACCESSION NO--AP0109472

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RESPONSE TO MOLECULAR OXYGEN WAS STUDIED AMONG SEVERAL BUTYRIC BACTERIA BELONGING TO THE CLOSTRIDIUM GENUS. OXYGEN THRESHOLD CONCENTRATIONS WERE DETERMINED AND CONSUMPTION OF OXYGEN, DISSOLVED IN THE CULTURAL BROTH, WAS STUDIED DURING THE LAG PHASE. THE SO CALLED OBLIGATE ANAEROBIC PROPERTY OF THE BACTERIA WAS FOUND TO VARY QUANTITATIVELY AND QUALITATIVELY IN DIFFERENT STRAINS. THE QUANTITATIVE DIFFERENCE CONSISTED IN VARIOUS THRESHOLD VALUES OF OXYGEN CONTENT IN THE MEDIUM, WHILE THE QUALITATIVE ONE, IN VARIOUS ABILITY AND NECESSITY TO CONSUME OXYGEN BEFORE GROWTH.

UNCLASSIFIED

USSR

AL'TSHULER, N. S., I VOYLOVA, E. Kh., LIVANOVA, L. D., STEPANOV, V. G.,  
STOLOV, A. L., Kazan' State University imeni V. I. Ul'yanov-Lenin

"Multiple-Center Structure of the Spectrum in  $\text{KMgF}_3$  and  $\text{KZnF}_3$  Crystals  
Activated by  $\text{Eu}^{2+}$  and  $\text{Gd}^{3+}$  Ions"

Leningrad, Fizika Tverdogo Tela, Vol 13, No 10, Oct 73, pp 2958-2962

Abstract: The authors analyze the EPR spectra and study the Stark structure of noncubic centers which arise when  $\text{KMgF}_3$  and  $\text{KZnF}_3$  crystals are activated by isoelectronic ions of  $\text{Eu}^{2+}$  and  $\text{Gd}^{3+}$ . The EPR spectra were measured at 9 GHz and 77°K. The constants of the spin Hamiltonian of the ground state of cubic centers of  $\text{Eu}^{2+}$  in the crystals as determined from analysis of the EPR spectra are compared with the parameters of the crystal field of the same centers. A diagram is plotted for Stark splitting of levels  $^6\text{P}_{7/2}$  and  $^6\text{P}_{5/2}$  for  $\text{Eu}^{2+}$  ions in centers of cubic, tetragonal, and trigonal symmetry, and also for seven active centers of  $\text{Gd}^{3+}$ . The results show indeterminacy of the  $\text{Gd}^{3+}$  ion position.

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USSR

UDC: 539.4

YZTSENKO, V. K., KORENEVSKIY, Ye. Ya., IVSHCHENKO, L. I., Zaporozh'ye

"Influence of Heat Treatment and Surface Quality on Endurance of EI961 Steel"

Kiev, Problemy Prochnosti, No 8, Aug 73, pp 65-70.

Abstract: The influence of grinding, polishing, diamond smoothing and subsequent tempering on the formation of the physical-mechanical characteristics of the surface layer and the fatigue strength of EI961 steel is studied. It is established that diamond smoothing significantly increases the endurance of EI961 steel and neutralizes the harmful influence of stress concentrators in the form of a chamfer, notch or press fit.

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USSR

UDC 539.43

YATSENKO, V. K., KORENEVSKIY, YE. YA., and IVSHCHENKO, L. I., Zaporozh'ye  
Machine-Building Institute ineni V. Ya. Chubar

"The Influence of Machining Methods Upon the Sensitivity of Steel EI961 to  
Stress Concentration at Alternating Loads"

Kiev, Problemy Prochnosti, No 2, Feb 72, pp 107-110

Abstract: With the aim of increasing the reliability and longevity of machine parts operating under heavy loads, research was conducted to determine the influence of machining methods (Fine turning, grinding, polishing, rolling by rollers, and diamond smoothing) upon the resistance of steel EI961 (1Kh12N2VMF) to fatigue failure in the presence of stress concentrators made in the form of fillets, grooves, and radial apertures. It was established that the most effective methods of machining machine parts, which neutralize the unfavorable influence stress concentrations upon the durability of the material are diamond smoothing and rolling by rollers. Three tables, 2 figures, 2 references.

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USSR

UDC 577.1:615.7/9

3  
ZALESOV, V. S., FRIDMAN, A. L., IVSHINA, T. N., IVSHIN, V. P., TARTAKOVSKIY, V. A., PLAKSINA, A. N., and BOLTNIK, T. V.

"Synthesis and Study of the Physiological Activity of Organomercury Nitro Compounds. I. Analysis of the Molecular Complexes of bis-(Trinitromethyl)-mercury"

Izv. Yestestvennonauchn. in-ta pri Permsk. un-te (News of the Institute of Natural Sciences, Perm University), 1970, 14, No 10, pp 159-168 (from RZh-Biologicheskaya Khimiya, No 9, May 71, Abstract No 9 F1876 from the résumé)

Translation: Synthesized molecular complexes of bis-(trinitromethyl)-mercury with diethyl-N-nitrosamine, diethylsulfone, dimethylsulfoxide, tetrahydrofurane, dioxane, and hexamethylenetetramine were found to be lacking in neurotropic, anticonvulsive, and antitremor action in mice and rats but possessing weak antimicrobial activity (*E. coli*, staphylococci) and high toxicity for mice after intraperitoneal injection (LD<sub>50</sub> 14.8 to 24.5 mg/kg or peroral administration (55 to 124 mg/kg) and for rats after peroral administration (51.4 to 305 mg/kg). Two preparations at toxic doses manifested weak analgesic action.

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1/2 031 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--REACTION OF BIS(TRINITROMETHYL)MERCURY WITH DIAZO COMPOUNDS -U-

AUTHOR--(05)--FRIDMAN, A.L., IVSHIN, V.P., IVSHINA, T.N., TARTAKOVSKIY,  
V.A., NOVIKOV, S.S.  
COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (3), 729

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANIC NITRO COMPOUND, ORGANOMERCURY COMPOUND, AZO COMPOUND,  
NITRILE, ORGANIC SYNTHESIS, COMPLEX COMPOUND, IR SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--2000/0747

STEP NO--UR/0062/70/C00/003/0729/0729

CIRC ACCESSION NO--AP0124417

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--23OCT70

2/2 031

CIRC ACCESSION NO--AP0124417

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MIXING ((O SUB2 N) SUB3 C) SUB2 HG (I) WITH PH SUB2 CN SUB2 OR DIAZOFLUORENE IN ET SUB2 O GAVE HG, N, AND 14PERCENT PH SUB2 C:C(NO SUB2) SUB2, M. 148-9DEGREES, OR 43PERCENT 1,1,DINITRODIPHENYLENEETHENE, M. 184-5DEGREES, ALONG WITH PH SUB2 CO OR FLUORENONE, RESP. THUS I MAY BE USED FOR SYNTHESIS OF GEM DINITROALKENES. THE LATTER WERE ALSO FORMED FROM SIMILAR REACTION OF I DIOXANATE, BUT THE EVOLUTION OF N IN THIS CASE WAS LESS ENERGETIC. ATTEMPTS TO USE A MORE STABLE DIAZO COMPO., SUCH AS DIAZODIMEDONE, GAVE ONLY ITS 1:1 COMPLEX WITH I, M. 129-30.5DEGREES, WHOSE IR SPECTRUM WAS DESCRIBED. FACILITY: INST. ORG. KHIM. IM. ZELINSKOGO, MOSXOW, USSR.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--N,HALO,N,NITRAMINES. 1. SYNTHESIS AND SOME PROPERTIES OF  
N,CHLORO,N,NITRAMINES -U-  
AUTHOR-(03)-IVSHIN, V.P., FRIDMAN, A.L., NOVIKOV, S.S.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (3), 640-4  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--NITRATION, ORGANIC NITRO COMPOUND, CARBAMATE, AMINE, CHEMICAL  
SYNTHESIS, CHLORINATED ORGANIC COMPOUND  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1999/1785 STEP NO--UR/0062/70/000/003/0640/0644  
CIRC ACCESSION NO--AP0123582  
UNCLASSIFIED



2/2 019

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0123582

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. NITRATION OF ((3,3,DINITROBUTYL)METHYL) CARBAMATE AND HYDROLYSIS OF THE PRODUCT WITH NH SUB4 OH GAVE 74PERCENT 3,3,DINITROBUTYLNITRAMINE, M. 38DEGREES. SIMILARLY WAS PREPD. FROM 2,2,DIAMINODIETHYL ETHER 85PERCENT 2,2 PRIME DINITRAMINODIETHYL ETHER, M. 65-60DEGREES. PASSING CL INTO A SOLN. OF A NITRAMINE IN AQ. NaOH AT 0-5DEGREES AND SEPN. OF THE PPT. PERIODICALLY GAVE THE FOLLOWING: (SHOWN ON MICROFICHE). I AND NAN SUB3 IN H SUB2 O,ME SUB2 CO GAVE AFTER LOSS OF GASEOUS PRODUCTS 53PERCENT (CH SUB2 NHNO SUB2) SUB2, M. 176DEGREES. I HEATED IN ETOH GAVE 100PERCENT SAME PRODUCT; AT ROOM TEMP. REACTION WITH ETOH REQUIRED 1-2 HR. I AND 36PERCENT FORMALIN AT 70DEGREES 5 MIN GAVE 96PERCENT (CCH SUB2.N(NO SUB2) CH SUB2 OH) SUB2, M. 82-4DEGREES; REACTION WITH 10PERCENT CH SUB2 O GAVE HN(NO SUB2) CH SUB2 CH SUB2 N(NO SUB2) CH SUB2 OH. FACILITY: INST. ORG. KHIM. IM. ZELINSKOGO, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 51

IVSHIN, YU. F.

"Production-Transport Model for a Group of Oil Refining Enterprises"

Tr. NII ekon. i organiz. material'no-tekhn. snabzh. (Works of the Scientific Research Institute of Economics and Organization of Material and Technical Supply), 1972, vyp. 2, pp 20-29 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V549)

Translation: A study was made of the formalized statement of the problem of optimal planning of the work of a group of oil refining enterprises. As a result of solving the problem, the optimal program of the oil refinery and the optimal assignment of the oil refineries of the country to consumers can be defined. This problem, which is a general model of the production transport type, can also find application in other branches of industry manufacturing products with a broad nomenclature. In solving the corresponding problem of linear programming of a special structure, the iterative method -- a symbiosis of the penalty method and the Franck-Wolf method -- is proposed.

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USSR

UDC 577.1:615.7/9

ZALESOV, V. S., FRIDMAN, A. L., IVSHINA, T. N., IVSHIN, V. P., TARTAKOVSKIY, V. A., PLAKSINA, A. N., and BOETIK, T. V.

"Synthesis and Study of the Physiological Activity of Organomercury Nitro Compounds. I. Analysis of the Molecular Complexes of bis-(Trinitromethyl)-mercury"

Izv. Yestestvennonauchn. in-ta pri Permsk. un-te (News of the Institute of Natural Sciences, Perm University), 1970, 14, No 10, pp 159-168 (from RZh-Biologicheskaya Khimiya, No 9, May 71, Abstract No 9 F1876 from the résumé)

Translation: Synthesized molecular complexes of bis-(trinitromethyl)-mercury with diethyl-N-nitrosamine, diethylsulfone, dimethylsulfoxide, tetrahydrofuran, dioxane, and hexamethylenetetramine were found to be lacking in neurotropic, anticonvulsive, and antitremor action in mice and rats but possessing weak antimicrobial activity (*E. coli*, staphylococci) and high toxicity for mice after intraperitoneal injection (LD<sub>50</sub> 14.8 to 24.5 mg/kg or peroral administration (55 to 124 mg/kg) and for rats after peroral administration (51.4 to 305 mg/kg). Two preparations at toxic doses manifested weak analgesic action.

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1/2 031 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--REACTION OF BIS(TRINITROMETHYL)MERCURY WITH DIAZO COMPOUNDS -U-  
AUTHOR-(05)-FRIDMAN, A.L., IVSHIN, V.P., IVSHINA, T.N., TARTAKOVSKIY,  
V.A., NOVIKOV, S.S.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (3), 729  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ORGANIC NITRO COMPOUND, ORGANOMERCURY COMPOUND, AZO COMPOUND,  
NITRILE, ORGANIC SYNTHESIS, COMPLEX COMPOUND, IR SPECTRUM  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--2000/0747 STEP NO--UR/0062/70/000/003/0729/0729  
CIRC ACCESSION NO--AP0124417  
UNCLASSIFIED

2/2 031

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0124417

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MIXING ((O SUB2 N) SUB3 C) SUB2 HG (I) WITH PH SUB2 CN SUB2 OR DIAZOFLUORENE IN ET SUB2 D GAVE HG, N, AND 14PERCENT PH SUB2 C:C(NO SUB2) SUB2, M. 148-9DEGREES, OR 43PERCENT 1,1,DINITRODIPHENYLENEETHENE, M. 134-5DEGREES, ALONG WITH PH SUB2 CO OR FLUORENONE, RESP. THUS I MAY BE USED FOR SYNTHESIS OF GEM DINITROALKENES. THE LATTER WERE ALSO FORMED FROM SIMILAR REACTION OF I DIOXANATE, BUT THE EVOLUTION OF N IN THIS CASE WAS LESS ENERGETIC. ATTEMPTS TO USE A MORE STABLE DIAZO COMPD., SUCH AS DIAZODIMEDONE, GAVE ONLY ITS 1:1 COMPLEX WITH I, M. 129-30.5DEGREES, WHOSE IR SPECTRUM WAS DESCRIBED. FACILITY: INST. ORG. KHIM. IM. ZELINSKOGO, MOSXOW, USSR.

UNCLASSIFIED

USSR

UDC: 539.374: 669.3: 662.75

AKSENOV, A.F., BOYKO, A.S. and IVZHENKO, I.P.

"Effect of Aviation Fuels on Plastic Deformations of Copper and  $\alpha$ -Brass"

Sb. nauch. tr. Kiev, in-t inzh. grazhd. aviatsii (Symposium of Scientific Works of Kiev Institute of Civil Aviation Engineers) 1971, vyp 2, pp 67-69 (from Referativnyy Zhurnal-Aviatsionnyye i Raketnyye Dvigateli, No 7, 1972, Abstract No 7.34.107)

Translation: Strengthening of copper and  $\alpha$ -brass with monoaxial tension in the mediums of T-1 and T-7 fuels, air and active-absorption medium-vaseline oil + 0.2% of oelic acid was investigated. Microhardness, measured by PMT-3 instrument served as criterion of strength. T-1 fuel and vaseline oil + 0.2% of oleic acid was investigated. Microhardness, measured by PMT-3 instrument served as criterion of strength. T-1 fuel and vaseline oil + 0.2% of oelic acid strengthen copper and  $\alpha$ -brass by equal amounts and less (by about 20-30%) than T-7 fuel and air (2 illustrations, 6 references, resume).

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USSR

UDC 613.68

IYERUSALIMSKIY, A. P., Institute of Water Transport Hygiene, Moscow

"Physiological and Hygienic Evaluations of Working Conditions and Work Routine on Coasting Vessels"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 7, 1971, pp 18-21

Abstract: Study of various conditions on board freighters plying the Far Eastern and Arctic waters showed that the crewmen are exposed to temperatures, light, electromagnetic radiations, noise, vibration, and gas pollution well above permissible levels established by official regulations. The day is broken up into two 4-hour watches with 8-hour intervals between them, but several hours are regularly spent on overtime work, lengthening the workday to an average of 11 to 11-1/2 hours. Psychological and physiological tests revealed a deterioration of mental performance and adverse effects on cardiovascular activity, especially in those working in engine rooms. An experimental routine with two 3-hour watches and 2 hours of other work (totaling no more than 8 hours' work a day) has proven quite beneficial. Navigating officers and helmsmen can continue to work two 4-hour shifts provided that they are relieved of other duties during their time off.

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1/2 013 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--SPECIFIC FEATURES OF THE MECHANICAL PROCESS OF CUTTING USING CUP  
TYPE CUTTERS WITH FORCED ROTATION -U-  
AUTHOR-(021-BOBROV, V.F., IYERUSALIMSKIY, O.YE. I

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, IZVESTIYA VYSSHIKH UCHEBNYKH ZAVEDENIY, MASHINOSTROYENIYE,  
NO. 1, 1970, PP. 130-134  
DATE PUBLISHED-----70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--METAL CUTTING, ALLOY DESIGNATION/(U)ZKH13 CHROMIUM STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1985/0521

STEP NO--UR/0145/70/000/001/0130/0134

CIRC ACCESSION NO--AT0100980

UNCLASSIFIED



2/2 013

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--ATO100980

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECTS OF THE FORCED DISPLACEMENT ALONG ITSELF OF THE CUTTING EDGE OF A CUP TYPE CUTTER ON THE AMOUNT OF CHIP DEFORMATION, ON THE FORCES ACTING ON THE FRONT SURFACES OF THE TOOL, AND ON THE CUTTING OPERATION AND ITS COMPONENTS ARE EXAMINED. EXPERIMENTS WERE UNDERTAKEN IN THE MACHINING OF ZKH13 STEEL, AND THE RESULTS INDICATE THAT THE PROCESS OF THE TRANSFORMATION OF THE MACHINED LAYER INTO A CHIP, WHEN CUTTING WITH A FORCED ROTATION CUP TYPE CUTTER WITH A CUTTING EDGE INCLINE ANGLE OF 0DEGREES, IS A PROCESS OF ANGULAR CUTTING WITH A CONSTANT CUTTING EDGE LENGTH. IN COMPARISON WITH ORDINARY ANGULAR CUTTING, THE SPECIFIC FEATURES OF THIS PROCESS ARE THAT THE INCLINE ANGLE OF THE CUTTING EDGE DEVELOPS KINEMATICALLY FOR A DEFINITE CUP ROTATION SPEED AND THAT NEW PORTIONS OF THE CUTTING SURFACE COME INTO CONTACT WITH THE LAYER BEING CUT DURING EACH ROTATION OF THE CUTTER. ALMOST ALL THE ATTRIBUTES OF ANGULAR CUTTING ARE INHERENT IN THIS PROCESS, AND IT IS ACHIEVED BY GIVING THE TOOL A STATIC ANGLE UNEQUAL TO ZERO. AN EXCEPTION IS THE MORE NOTICABLE DECREASE IN FRICTION FORCES OVER NORMAL FORCES, WITH AN INCREASE IN THE TOOL WORKING ANGLE. THIS LEADS TO A DECREASE IN THE MEAN FRICTION COEFFICIENT, AND NOT AN INCREASE AS IS THE CASE IN ORDINARY ANGULAR CUTTING.

UNCLASSIFIED

USSR

UDC 661.872.2+847+856:669.092.5.539.27

KORNEYEVA, A. N., LYSENKO, V. P., IYELVLEV, V. M., and VORONTSOV, YE. S.,  
Voronezh Polytechnic Institute

"Structural Changes of Colored Oxide Films on Iron, Nickel, and Copper  
During Their Reduction by Hydrogen and Carbon Monoxide"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Chernaya Metallurgiya,  
No 6, Aug 73, pp 21-26

**Abstract:** An attempt was undertaken to carefully study the structural changes occurring in colored films on Fe, Ni, and Cu during their reduction by hydrogen and carbon monoxide. Samples of armco iron and electrolytic nickel and copper were oxidized at certain temperatures and the color changes noted; for iron the color of the oxide film changed from blue to violet to yellow when reduced at 400°C with hydrogen and 450°C with Cu; color changes for the oxide film on nickel changed from blue to violet to yellow when reduced at 300°C in hydrogen and 350° -- in carbon monoxide; and for copper -- blue to red to orange when reduced in hydrogen at 300°C and in Cu at 350°C. Analysis of the results showed that the growth of film thickness is accompanied by an increase in crystal size and their perfection.

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USSR

KORNEYEVA, A. N., et al., *Izvestiya Vysshikh Uchebnykh Zavedeniy -- Chernaya Metallurgiya*, No 8, Aug 73, pp 21-26

The oxide film on Fe is independent of its thickness and consists primarily of  $\alpha\text{-Fe}_2\text{O}_3$  and a small amount of  $\text{Fe}_3\text{O}_4$ ; the oxide film on nickel is  $\text{NiO}$ ; and on copper, according to the degree of film thickening, the content of tenorite  $\text{CuO}$  is increased and the amount of cuprite  $\text{Cu}_2\text{O}$  is diminished.

The nickel oxide film is not altered by the reduction process. It was shown from electronographic analysis that the structural changes of a film during its reduction and ion migration can cause some rearrangement of the crystal lattice from the higher oxide to the lower. From a thermodynamic viewpoint, the extraction of oxygen from the oxide film leads to the formation of a supersaturated solid solution of the metal in the oxide. From the molecular viewpoint, the mechanism of reduction takes into account the action of the electrical field within the film and the reduction mechanism is just the opposite of the oxidation process. Two figures, nine bibliographic references.

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USSR

UDC 539.23

BELONOGOV, V. K., ZOLOTUKHIN, I. V., IYEVLEV, V. M., and  
POSTNIKOV, V. S., Voronezh

"Production of Single-Crystal Aluminum Films on Mica"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 5, Sep-Oct 70,  
pp 146-147

Abstract: The authors are studying conditions for the production of single-crystal films on mica by condensation in a vacuum of up to  $1 \cdot 10^{-5}$  mm Hg. Condensation onto a surface prepared by vacuum cleavage in vapors of the metal permits the production of single-crystal films at a substrate temperature of  $450^{\circ}$  C and a residual pressure below  $5 \cdot 10^{-2}$  mm Hg. The deposition rate is at least  $150 \text{ \AA}/\text{sec}$ . The thickness of the studied films is 500-10,000  $\text{\AA}$ . The present article studies the structure of aluminum films 500-10,000  $\text{\AA}$  thick, obtained by vacuum condensation onto mica (muscovite), for the purpose of determining factors affecting the growth of single-crystal aluminum films. In order to estimate

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USSR

BELONOGOV, V. K., et al., Fizika i Khimiya Obrabotki Materialov, No 5, Sep-Oct 70, pp 146-147

the effect of residual gases on film structure, condensation was carried out in a vacuum of  $5 \cdot 10^{-2}$  mm Hg and  $1 \cdot 10^{-5}$  mm Hg onto the cleavage surface of mica prepared in air and in vacuum. A comparison of the structure of films obtained at the same substrate temperatures for air and vacuum cleavage indicates that the growth of aluminum films on mica is susceptible to the action of residual gases on the substrate. Vacuum cleavage in the presence of the metal vapors and at high condensation rates reduces their action to a minimum even at a residual pressure of  $5 \cdot 10^{-2}$  mm Hg. This makes it possible to obtain single-crystal films under such conditions.

2/2

USSR

UDC 621.375.82

IYEVLEVA, L. D., KARAGODOVA, T. Ya., KOVNER, M. A.

"Induced Raman Emission by Magnetic Sublevels of Atoms"

V sb. Nelineyn. protsessy v optike. (Nonlinear Processes in Optics--collection of works), Vyp. 2, Novosibirsk, 1972, pp 246-249 (from RZh-Fizika, No 12, Dec 72, Abstract No 12D874)

Translation: A study was made of induced Raman emission by the magnetic sublevels of atoms placed in a constant magnetic field  $H$  under conditions in which the high-frequency Stark shifts are less than the Zeeman splittings. The susceptibility for induced Raman emission on the Zeeman sublevels was calculated. The possibility of the appearance of new intercombination transitions in the atoms in the case of the Raman effect in a magnetic field and the possibility of smooth frequency tuning of the scattered light by the magnetic field are discussed.

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1/2 028  
UNCLASSIFIED  
TITLE--PROPERTIES OF FIBERS BASED ON COPOLYMERS OF ETHYLENE TEREPHTHALATE  
WITH ETHYLENE HYDROXYISOPHTHALATE -U-  
AUTHOR--(04)-GORBACHEVA, V.O., DYURNBAUM, V.S., IYEVLEVA, N.K., KHOKHLOVA,  
N.S.  
COUNTRY OF INFO--USSR  
PROCESSING DATE--18SEP70  
SOURCE--KHIM. VOLOKNA 1970, (1), 9-11  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY, MATERIALS  
TOPIC TAGS--COPOLYMER; POLYETHYLENE TEREPHTHALATE, HYDROXYL RADICAL,  
SYNTHETIC FIBER, THERMAL ANALYSIS, DILATOMETRY, MICROSCOPY, THERMAL  
EFFECT  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FAME--1984/1826  
CIRC ACCESSION NO--AP0100400  
STEP NO--UR/0183/70/000/001/0009/0011  
UNCLASSIFIED

2/2 029

CIRC ACCESSION NO--AP0100400

UNCLASSIFIED

PROCESSING DATE--18SEP70

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE STRUCTURE AND PHYSICOMECH.

PROPERTIES OF ETHYLENE TEREPHTHALATE, (1

UNCLASSIFIED

89



USSR

UDC 577.1:615.7/9

IYEVLEVA, YA. A., PETRUSHINA, V. I., and YUSHCHENKO, V. A.

"The Effect of Alkyl Sulfates on Skin"

Neftepererabotka i Neftekhimiya. Ref. Sb. (Petroleum Refining and Petroleum Chemistry. Collection of Reports), No 3, 1972, pp 53-54 (from Referativnyy Zhurnal -- Biologicheskaya Khimiya, Otdel'nyy Vypusk, No 19, 1972, Abstract No 19F2031 by L. A. Shavarina)

Translation: The skin irritation threshold (SIT) for six commercial alkyl sulfates of fatty acids (AFA) was established in experiments on guinea pigs. The AFA are used for the production of shampoos. A dependence was established between the SIT of AFA on the composition of starting alcohols. SIT of imported preparations "Empicol" and "Saktipon" prepared from alcohols of identical composition (fraction  $C_{12} - C_{14}$ ) amounted to 4% of PAV in aqueous solution. The SIT increased to 8-12% when the triethylamine salt of the alkyl sulfate fraction  $C_{16} - C_{18}$  and 30% high-molecular hydrocarbons  $C_{16} - C_{18}$  were used (domestic products). The SIT of the alkyl sulfate salt of  $C_{10} - C_{13}$  fraction was 7%, while SIT of the triethylamine salt was only 5% compared

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USSR

IYEVLEVA, YE. A., et al., Neftepererabotka i Neftekhimiya. Ref. Sb., No 3, 1972, pp 53-54

with the Na salt. The threshold concentrations of triethylamine salt in commercial samples were considerably lower than those of model samples of identical fractional composition, despite the fact that the latter contained Na salts of alkyl sulfates. It is concluded that low-molecular alcohols decrease considerably the irritating effect of PAV.

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USSR

UDC 621.396.6.019.3

VOROBIEVA, T. M., IYUDU, K. A.

"Optimization of Electronic Circuits with Respect to Parametric Stability by the Method of Nonlinear Transformations"

Metody razrab. radioelektron. apparatury. Materialy Seminara. Sb. 2 (Methods of Developing Radioelectronic Equipment. Materials of the Seminar. Collection 2), Moscow, 1970, pp 39-42 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8A182)

Translation: The necessary condition of the extremum of the given function characterizing the investigated circuit when imposing certain restrictions on the parameters has been derived. As an example, let us consider the RC-circuit with a component resistor. The bibliography has two entries.

1/1

- 27 -

USSR

UDC 631.531.1;537.212;577.37

IZAKOV, F. Ya., NECHAYEV, V. I., and BLONSKAYA, A. P.

"Investigation of the Mechanism of Action of Electrical Field on Seeds"

Kishinev, Elektronnaya Obrabotka Materialov, No 2, 1970, pp 70-76

Translation: It was established that the result of seed treatment in an electrical field depends on the field strength and also on the magnitude and sign of charge. The effect of the electrical field can be explained by the joint influence of field strength and of charges acquired by the seed, which probably produces change in the biopotential of the cell and formation of complexes with charge transfer. A hypothesis is introduced which explains the positive effect of the action of negative nitrogen ions on seeds. It was discovered that the effect of an electrical field on seeds is analogous to the effect of gamma rays and other electrophysical methods. However, unlike these methods, the process of treatment of seeds with electrical field takes place with small losses of energy and does not lead to formation of free radicals. Presowing treatment of seeds in an electrical field is recommended.

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USSR

UDC 576.858.25.083.35.095.73

IZAKOVA, L. P., BOGOMOLOVA, N. N., and ANDZHAPARIDZE, O. G., Moscow Scientific Research Institute of Virus Preparations"

"Investigation of Lysosomes in Cells of Cultures Chronically Infected with Tickborne Encephalitis Virus"

Moscow, Voprosy Virusologii, No 6, Nov/Dec 71, pp 697-700

Abstract: Changes observed in the morphology and distribution of lysosomes, acid phosphatase activity, and absorption of vital stains in HEp-2-Soph culture cells chronically infected with tickborne encephalitis virus warrant classifying these cells into three groups. Group 1: the cells remain similar to controls. Group 2: during the first 48 hours after inoculation, the cells are characterized by a low acid phosphatase and presence of agglomerates of lysosomes near the nuclear membrane, and they resemble cells degenerating in the acute form of encephalitis. Group 3 is most numerous: from the 3rd to the 7th postinoculation days, lysosome "complexes" are present in the cells which also display a very high acid phosphatase activity and absorb large quantities of vital stains. Thus, by the lysosome reaction, the cells are similar to those observed in the latent form of tickborne encephalitis. After 7-8 days, the pathology begins to subside, and the morphology and function of the lysosomes of the HEp-2-Soph cells returns to normal.

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Microbiology

USSR

BOGOMOLOVA, N. N., IZAKOVA, L. P., SHUKHIMINA, N. R., and ANDZHAPARIDZE, O. G.,  
Moscow Scientific Research Institute of Viral Preparations

"Chronic Infection of Cells With Tickborne Encephalitis Virus. 7. Isolation of Cell Clones and Study of Their Properties"

Moscow, Voprosy Virusologii, No 5, 1971, p 623

Abstract: A study is presented of 15 cell clones isolated from chronically infected Hep-2-Soph cultures while protected by specific antibodies. The production of infectious tickborne encephalitis virus was detected in 13 clones where interference with WEE virus was observed and specific antigen was synthesized. The use of histochemical methods revealed three groups of cells with different metabolisms in each of the clones. The first group included degenerating cells found during the first 2 hours after subculturing. These cells contained an abundance of glycogen in the lyoform. They were also characterized by high succinic dehydrogenase activity with pronounced polymorphism of the formazan residue and low acid phosphatase activity. The second group of cells with normal morphology constituted most of the cell population. They were characterized by high succinic dehydrogenase activity, large content of lyo (dissolved) and granular glycogen, and high acid phosphatase activity.

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USSR

BOGOMOLOVA, N. N., et al., Voprosy Virusologii, No 5, 1971, p 623  
phatase activity. The third group was indistinguishable from the control  
with respect to the nature of the metabolism of the substances studied. It  
was concluded that most of the cell population could be infected by a chroni-  
cally infected Hep-2-Soph culture.

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- 7 -

USSR

UDC 576.311:578.085.2

IZAKOVA, L. P., BOGOMOLOVA, N. N., ZALKIND, S. Ya., and ANDZHAPARIDZE, O. G.,  
Laboratory of Cytopathology and Laboratory of Immunobiology, Institute of  
Virus Preparations, Ministry of Public Health USSR, Moscow

"Studies of Lysosomes of Cells in Cultures Infected With Tickborne Enceph-  
alitis Virus"

Leningrad, Tsitologiya, Vol 12, No 10, Oct 70, pp 1,328-1,333

Abstract: Cytochemical methods, determination of acid phosphatase activity and cytological methods (accumulation of neutral red and acridine orange dyes) were used in a comparative study of the lysosome apparatus of two stable cell lines, one of which acutely infected and the other latently infected with tickborne encephalitis virus. Considerable changes in the localization and physiological state of the lysosomes were found which are apparently associated with different stages of the infection. Immediately after infection, lysosome granules move to the cell periphery and their activity is reduced. After 2-3 hours, the lysosomes are in the perinuclear zone; their acid phosphatase activity is enhanced, as is the accumulation of vital stains. For the acute infection, the maximum reaction

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USSR

IZAKOVA, L. P., et al, Tsitologiya, Vol 12, No 10, Oct 70, pp 1,328-1,333

is observed 24 hours after virus inoculation. In the latent infection, the maximum reaction is observed 24-72 hours after infection. After 5-6 days, the lysosome apparatus returns to its normal state. The lysosome reaction in the early stages of infection thus depends on the type of infection (acute or latent).

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1/2 027

UNCLASSIFIED  
TITLE--THE APPLICATION OF DIADYNAMIC CURRENTS IN COMBINATION WITH THE  
ADMINISTRATION OF NOVOCAINE -U- PROCESSING DATE--27NOV70  
AUTHOR--(02)-IZAKSON, KH.A., GIMMELFARB, D.S.

COUNTRY OF INFO--USSR

SOURCE--VOYENNO-MEDITSINSKIY ZHURNAL, 1970, NR 3, P 121-122

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ANESTHESIA, NERVOUS SYSTEM DISEASE, PAIN, ELECTROPHYSIOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3007/0381

STEP NO--UR/0177/70/000/003/0121/0122

CIRC ACCESSION NO--AP0135867

UNCLASSIFIED

2/2 027

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0135867

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DIADYNAMIC CURRENTS ARE WIDELY USED IN DISEASES OF THE PERIPHERAL NERVOUS SYSTEM (RADICULITIS, NEURALGIA, ETC). HOWEVER, THE FELLING OF BURNING AND IRRITAION OF THE SKIN UNDER THE ELECTRODES IN SOME PATIENTS REDUCED THE EFFECTIVENESS OF THE TREATMENT. BECAUSE OF THAT A METHOD OF TREATMENT WITH DIADYNAMIC CURRENTS WITH THE SIMULTANEOUS ADMINISTRATION OF NOVOCAINE IN THE PAINFUL ZONES HAS BEEN APPLIED. USUALLY, 2-2.5PERCENT NOVOCAINE SOLUTION IS USED. WITH THAT METHOD 140 MEN AGED 20-50 YEARS, SUFFERING FROM VARIOUS DISEASES OF THE NERVOUS SYSTEM HAVE BEEN TREATED 41 MEN WITH LUMBOSACRAL RADICULITIS, 7 WITH THORACIC, 10 WITH CERVICAL, 19 WITH LUMBAR ISCHIALGIA, 21 WITH LUMBAGO, 8 WITH NEURITIS OF THE SCIATIC NERVE, 8 WITH NEURALGIA OF THE FIRST BRANCH OF THE TRIGEMINAL NERVE, 6 WITH INTERCOSTAL NEURALGIA, 6 WITH BRACHIAL PLEXITIS, AND 14 WITH MYOSITIS. ALTERNATION EVERYONE OR TWO MINUTES OF CURRENT MODULATED IN SHORT AND LONG PERIODS, WITH SIMULTANEOUS OF NOVOCAINE AT THE PAINFUL POINT, GAVE A GOOD THERAPEUTIC RESULT. THE PAIN SYNDROME WAS ELIMINATED IN 86.4PERCENT OF THE PATIENTS AND IMPROVEMENT WAS NOTED IN THE REST. IN A CONTROL GROUP (100 ANALOGOUS PATIENTS) IT WAS ELIMINATED IN ONLY 75PERCENT OF THE CASES.

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE--0206170  
TITLE--PREPARATION OF OPAQUE ANODIC OXIDE FILMS ON ALUMINUM ALLOYS -J-  
AUTHOR--(R3)-LEONOVA, L.A., ARYANOVA, I.I., IZAMAYLOV, A.V.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. VYSSH. UCHEB. ZAVED., KHIM. KHIM. TEKHNOL. 1970, 13(1), 55-6  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--ANODIC COATING, ANODIZED ALUMINUM, ELECTROLYTIC OXIDATION,  
CITRIC ACID, BORIC ACID, OXALATE/(U)D16T ALUMINUM ALLOY, (U)AMTSAM  
ALUMINUM ALLOY, (U)AM60 ALUMINUM ALLOY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REL/FRAME--1994/1793 STEP NO--UR/0153/70/013/001/0099/0165  
CINC ACCESSION NO--AT0119622  
UNCLASSIFIED

2/2 016 UNCLASSIFIED PROCESSING DATE--02OCT70  
 CIRC ACCESSION NO--AT0115622  
 ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. GOOD QUALITY OPAQUE FILMS ARE  
 ELECTROLYTICALLY FORMED ON AL ALLOYS D16 T, D16 AMO, ANTS AM, AND AMO 6M  
 FROM AN ELECTROLYTE CONTG. OXALIC ACID 40-60, CITRIC ACID 10-30, H SUB3  
 30 SUB3 3-10 G-L. AT 10-40DEGREES AND C.D. EQUALS 1-4 A-DM PRIME2 AT  
 50-90 V BY USING A STAINLESS STEEL CATHODE. IN 1 HR AT 2.5 A-DM PRIME2  
 THE MAX. FILM THICKNESS OF 22-8 MMU IS OBTAINED AT 20-30DEGREES. IF  
 ELECTROLYSIS IS CONTINUED FOR 150 MIN AT 25DEGREES, THE FILM THICKNESS  
 ON D16 AMO ALLOY INCREASES TO 45 MMU, BUT DOES NOT INCREASE WITH LONGER  
 ELECTROLYSIS. AT 10 MIN THE CURRENT YIELD IS 43.5PERCENT, BUT OVER A 4  
 HR PERIOD, IT IS ONLY 14.5PERCENT. OVER THE RANGE 1-4 A-DM PRIME2, THE  
 FILM DEPOSITED IN 1 HR INCREASES LINEARLY 9.5-37.7 MMU IN THICKNESS.  
 THE COLOR AND TONE OF THE FILM DEPENDS ON THE ALLOY SUBSTRATE AND TIME.  
 LIGHTER, BRIGHTER FILMS ARE OBTAINED AT 25-35DEGREES THAN AT  
 10-15DEGREES.

UNCLASSIFIED

USSR

UDC 621.357.7:669.225'73

KUDRA, O. K., IZBEKOVA, O. V., GAYEVSKAYA, L. V.

"Study of Electrolytic Separation of Silver-Cadmium Alloy"

Vestn. Kiev. Politekhn. In-ta. ser. Khim. Mashinostr. i Tekhnol [Herald of Kiev Polytechnical Institute, Chemical Machine Building and Technology Series], No 8, 1971, pp 52-54 (Translated from Referativnyy Zhurnal, Khimiya, No 3, 1972, Abstract No 3 L327 by Z. A. Solov'yeva).

Translation: Cathode polarization and the composition of Ag-Cd alloys from a trilonate electrolyte are studied. It is demonstrated that the precipitation of the alloy begins after attainment of  $D_{(lim)}$  with respect to Ag. As  $D$  is increased, the content of Cd in the alloy increases. Following attainment of the second  $D_{(lim)}$  (for Cd), the composition of the alloy is stabilized and becomes independent of  $D$ . Mixing increases both  $D_{(lim)}$ , increases the content of Ag in the alloy and increases the permissible value of  $D$ . The yield per current of alloy increases with increasing  $D$ , particularly without agitation. As the content of Ag in the alloy increases, the hardness of the sediment passes through a maximum at 30-35% Ag. The intermediate resistance of the alloy is  $\sim 0.03$  ohm with various Ag contents, which is near that of pure electrolytic silver. To produce an alloy containing 30-40% Ag, an elec-  
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- USSR

UDC 621.357.7:669.225'73

KUDRA, O. K., IZBEKOVA, O. V., GAYEVSKAYA, L. V., Vestn. Kiev. Politekhn.  
Inta. ser. Khim. Mashinostr. i Tekhnol, No 8, 1971, pp 52-54.

trolyte is recommended containing (mol/l)  $\text{AgNO}_3$  0.035,  $\text{CdSO}_4$  0.165, trilon  
B 0.3, pH 8-9 (adjusted by KOH),  $D$  1-1.25  $\text{a/dm}^2$  without agitation or  
7-8  $\text{a/dm}^2$  with intensive agitation.

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USSR

UDC 621.791.011

IZBENKO, L. A., and MAKHNENKO, V. I., Kiev

"Specifics of the Process of Propagation of Heat During Welding of Dissimilar Disks"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 2, Mar-Apr 71, pp 15-18.

Abstract: An analytic solution is given for the temperature field during butt welding of composite circular disks of different materials or of different thickness with a powerful, rapidly moving heat source, on the basis of the general theory of propagation of heat during welding. Areas of applicability of simpler calculation plans are demonstrated for several particular cases.

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USSR

UNC 621.791.011

IZBENKO, L. A., and MAKHNENKO, V. I., Kiev

"Specifics of the Process of Propagation of Heat During Welding of Dissimilar Disks"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 2, Mar-Apr 71, pp 15-18.

Abstract: An analytic solution is given for the temperature field during butt welding of composite circular disks of different materials or of different thickness with a powerful, rapidly moving heat source, on the basis of the general theory of propagation of heat during welding. Areas of applicability of simpler calculation plans are demonstrated for several particular cases.

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USSR

UDC 621.316.718:620.771.06

IZBITSKIY, E. I.

"Pulse Regulation of Tape Motion"

Moscow, Impul'snoye Regulirovniye Dvizheniya Lentochnogo Materiala [English Version Above], Energiya Press, 1970, 112 pages

Translation of Annotation: This book analyzes the use of pulse systems for automatic control of the tape motion in high-speed rotating machines and other devices. The specifics of the tape drive system of the processing machine are studied as an object of control. A calculation method is presented and a study of standard pulse regulation systems is performed.

The book may be useful to engineers and technicians studying problems of automation of technological processes, as well as students of the corresponding specialties.

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IZBITSKIY, E. I., Impul'snoye Regulirovniye Dvizheniya Lentochnogo Materiala, Energiya Press, 1970, 112 pages

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USSR

IZBITSKIY, E. I., Impul'snoye Regulirovniye Dvizheniya Lentochnogo Materiala, Energiya Press, 1970, 112 pages

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IZERGIN, A.P.

SPKS 59208

6.73

XI-10. EFFECT OF THE GROWTH CONDITIONS ON THE PERFECTION OF CAP CRYSTALS  
Article by T. I. Ol'khovskaya, A. F. Ierkin, V. V. Makarov, F. R. Khabibov,  
Novosibirsk, III Sibirskiy na Protekaniye Raza i Sleda Poluprovodnikov  
Kriksallov i Plenok, Novosibirsk, 12-17 June 1977, p 126.

The methods of x-ray diffraction tomography [Berman and Lang] were used  
to perform a systematic study of the degree of perfection of single gallium  
phosphide crystals obtained by drawing from a melt by the Czochralski method.

It was demonstrated that the unalloyed CAP crystals obtained from the  
flux layer have, as a rule, high dislocation density. In addition, there are  
impurity growth and stress bands in them (frequently leading to cracking of the  
bar).

In this paper the problems of improving the technological process of  
obtaining single crystals are discussed, and results are presented from a  
study of the structure of the defects in them.

1/2 035 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--PROPERTIES OF HIGH RESISTANCE GALLIUM ARSENIDE CONTAINING A  
TITANIUM IMPURITY -U-  
AUTHOR--(05)-VOROBYEV, V.L., GONTAR, V.M., YEGIAZARYAN, G.A., IZERGIN,  
A.P., MAKAROV, V.V.  
COUNTRY OF INFO--USSR  
SOURCE--FIZ. TKEH. POLUPROV. 1970, 4(5), 995-7  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--SINGLE CRYSTAL GROWTH, GALLIUM ARSENIDE, TITANIUM, CRYSTAL  
LATTICE DISLOCATION, CRYSTAL IMPURITY, MANGANESE, IRON, ALUMINUM,  
MAGNESIUM, NICKEL, COBALT, BISMUTH, CHROMIUM, TIN, SEMICONDUCTOR  
MATERIAL  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3003/0146 STEP NO--UR/0449/70/004/005/0995/0997  
CIRC ACCESSION NO--AP0129402  
UNCLASSIFIED

2/2 035 UNCLASSIFIED PROCESSING DATE--04DEC70  
 CIRC ACCESSION NO--AP0129402  
 ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. GAAS SINGLE CRYSTALS WERE GROWN BY THE CZOCHRALSKI METHOD FROM POLYCRYST. GAAS WITH AN ADDN. OF METALLIC TI. THE DISLOCATION D. WAS SMALLER THEN OR EQUAL TO 2 TIMES 10 PRIME4-CM PRIME2, AND THE TI CONTENT WAS SIMILAR TO 10 PRIME18-CM PRIME3. THE CONTENTS OF FE, AL, MG, NI, CO, BI, CR, SN, AND MN WERE 10 PRIME NEGATIVE5-10 PRIME NEGATIVE4 WT. PERCENT, AND THAT OF SE WAS SIMILAR TP 10 PRIME NEAGTIVE3 WT. PERCENT. THE MATERIAL WAS P TYPE, WITH AN ELEC. RESISTIVITY OF SIMILAR TO 10 PRIME2 OHM CM, A FREE CARRIER CONCN. OF 10 PRIME14-10 PRIME15-CM PRIME3, AND A MOBILITY OF 10-100 CM PRIME2-V SEC AT ROOM TEMP. TWO WNERGY LEVELS WERE DETD. FROM THE TEMP. DEPENDENCE OF THE HALL CONST. AND OF THE ELEC. COND. AS 0.35 AND 0.22 EV, RESP.; THE LATTER LEVEL WAS DUE TO THE GA VACANCY. DIODES OF THE P-PI-N TYPE WERE PREPD. FROM THE CRYSTAL, USING SN AS THE INJECTING CONTACT AND AG AS THE NONRECTIFYING ONE. THE AREA OF THE PN JUNCTION WAS 5 TIMES 10 PRIME NEGATIVE3-10 PRIME NEGATIVE2 CM PRIME2. THEIR CURRENT VOLTAGE CHARACTERISTICS AT ROOM TEMP. EXHIBITED A REGION OF NEG. RESISTIVITY, WHICH DISAPPEARED ABOVE 80-90DEGREES AND (OR) IN MAGNETIC FIELDS LARGER THAN OR EQUAL TO 3 KOE. THE NEG. RESISTIVITY IS EXPLAINED AS DUE TO A CHANGE IN THE SCREENING RADIUS OF THE CHARGED IMPURITIES DURING THE INJECTION.

UNCLASSIFIED

IZERGINA, A. G.

SPRS 56030.  
18 May 72

UDC 612.111.2.014.862

ERYTHROCYTE RESERVE IN HEALTHY AND CHRONICALLY IRRADIATED DOGS  
(Article by A. V. IERGINA, A. G. IERGINA, and A. A. MARKSLEY;  
Moscow, Meditsinskaya Biologiya i Meditsina, 1971, No 6, March-  
April 1972, pp. 21-23, submitted for publication 10 June 1971)

**Abstract:** This paper gives experimental data which help to quantify the level at which the erythrocyte level of healthy and irradiated dogs is mobilized after a physical load. After running for 15 minutes on a treadmill at a speed of 5.2 km/h the healthy dogs released into the bloodstream 2400.9% of the red blood cells of the total number of cells circulating in the blood. The most distinct index showing the state of the erythrocyte reserve is the reticulocytosis which develops in response to a given physical load. On the basis of data in the literature and their own findings the authors suggest that the erythrocyte reserve originates in the bone marrow. A significant decrease in the quantitative reserve of erythrocytes in healthy and irradiated dogs was found. The animals were irradiated in total doses of 370, 420, 470, and 520 rads for 3, 6, 12 and 21 months respectively.

Contributions of the bone-marrow production of erythrocytes and the intensity of their transfer in the human body in different laboratory animals reveal a correspondence of these parameters (Gronkite, et al.). Some authors maintain that the reserve of erythrocytes, in contrast to granulocytes, do not form a part of the total leukocyte cell reserve (Gronkite, et al.). At the same time, A. V. IERGINA and A. G. IERGINA, in their work, point out that during about half of work there is an increase in the hemoglobin content and the number of erythrocytes due to emergence of the blood from its source in the marrow. In the erythrocytes, however, work is characterized by an increase in the number of reticulocytes in the peripheral blood. However, no data on direct investigation in the literature indicating the magnitude



1/2 013 UNCLASSIFIED PROCESSING DATE--300CY70  
TITLE--DEOXYRIBONUCLEASE ACTIVITY IN THE URINE OF RATS INJURED BY  
POLONIUM-210 AND TREATED WITH OXATHIOL -U-  
AUTHOR-(02)-USPENSKAYA, M.S., IZERGINA, A.G.

COUNTRY OF INFO--USSR

SOURCE--RADIOBIOLOGIYA 1970, 10(1), 153

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DEOXYRIBONUCLEASE, ENZYME ACTIVITY, POLONIUM ISOTOPE, URINE,  
EXCRETION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1998/0467

STEP NO--UR/0205/70/010/001/0153/0153

CIRC ACCESSION NO--AP0121141

UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121141

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. A SINGLE S.C. INJECTION OF PRIME210 PO (0.1 MCI-KG) INTO RATS INCREASED DNASE II ACTIVITY IN URINE BY 39, 45, 58, AND 65PERCENT ON THE 3RD, 5TH, 7TH, AND 9TH DAY POSTINJECTION. APPLICATION OF OXATHIOL ACCELERATED THE EXCRETION OF PRIME210 PO AND REDUCED DNASE ACTIVITY LEVEL IN URINE TO NORMAL. INJECTION OF OXATHIOL INTO CONTROL ANIMALS DID NOT CHANGE THE DNASE LEVEL IN THE URINE. FACILITY: INST. BIOFIZ., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 621.375.146.6

ZHAVORONKOV, V. I., IZGAGIN, L. N., SHVARTS, N. Z., Moscow State Pedagogical Institute

"A Transistorized Microwave Amplifier With 1-1000 MHz Passband"

Moscow, Pribery i Tekhnika Eksperimenta, No 3, May/Jun 72, pp 134-135

Abstract: The article describes a transistorized microwave amplifier with a passband of 1-1000 MHz and output amplitude of the order of several volts. A schematic diagram of one stage is presented. The stage contains a GT612 transistor connected in a common-emitter circuit, and also an interstage circuit for matching the low input impedance of the transistor to the relatively higher output impedance, and for leveling out the amplitude-frequency response over a broad frequency range. The SWR at input and output increases with a reduction in frequency, with a value no greater than 3 throughout the passband. The gain of a four-stage amplifier is 22 dB with nonuniformity of  $\pm 1.5$  dB. The amplifier has a linear amplitude characteristic up to output powers of 12 mW, as well as linear phase response. Combining the four-stage amplifier with a two-stage input amplifier increases the gain to  $33 \pm 3$  dB without narrowing the passband. The described four-stage amplifier was used as a preamplifier for the vertical deflection.

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USSR

ZHAVORONKOV, V. I. et al., Pribory i Tekhnika Eksperimenta, No 3, May/Jun 72, pp 134-135

tion channel of a superhigh-frequency oscilloscope with 10LO101M traveling wave CRT having a sensitivity of 0.7 V/mm in the passband of 0-1.5 GHz. By increasing the sensitivity of the oscilloscopic unit by a factor of 12-15, this made it possible to study continuous signals with frequencies of 1-1000 MHz and power of the order of 0.01 mW, as well as video pulses with an amplitude as low as 0.1 V and less with a duration of 1 ns with a rise time of 0.2-0.4 ns.

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USSR

UDC 621.789:620.186.1

LIVSHITS, B. G., ASTRAKHANTSEVA, N. A., IZGORODIN, A. K., NIKOLAYEVA, V. N., (DECEASED), KHLLOMOV, V. S., and TSVILING, M. YA., Moscow Institute of Steel and Alloys

"Effect of Titanium on the Properties of the Beta- and Beta<sub>2</sub>-Phases and Brittleness of Annealed Alloys of the YuDK35T5 Type"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 8, Aug 73, pp 37-40

Abstract: The effect of titanium on the brittleness of type YuDK35T5 alloys in the equilibrium state at 770°C was studied, and hardness, chemical composition of beta- and beta<sub>2</sub>-phases, and their effect on the failure process were determined. The four test samples contained (in wt %): 34-31 Fe, 15 Ni, 8 Al, 35 Co, 4,5,6,7 Ti, and 4 Cu. The chemical composition of the phases is also given. Mechanical tests showed that as titanium content increases so does bend strength, percentage of cases of bending with cracks of the beta-phase, and percentage of cases of cessation of beta-phase precipitation, while decreases were noted for the number of secondary cracks in one sample, percentage of branch cracks, and beta-phase microhardness. The value of the critical temperature was determined for alloys YuDK35T5 and YuDK40T7 which has been

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USSR

LIVSHITS, B. G., et al., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 8, Aug 73, pp 37-40

arc melted and annealed at 770°C for 2500 hours.  $T_{cr}$  was 680 and 700°C, respectively. The effect of the beta- and beta<sub>2</sub>-phases on alloy failure for the varying titanium content was explained in that in all the studied alloy samples a crack passes into the beta<sub>2</sub>-phase and bends the beta-phase precipitate. With increased Ti content, the attempt of cracks to bend beta-phase precipitates grows. In the alloy with 4% Ti, in 30 cases out of 100, cracks bend in their advancement of the beta-phase, and in the alloy with 7% Ti, in 65 cases out of 100. Crack cessation occurs, as a rule, in the beta-phase precipitations. This indicates that the beta-phase is less brittle than the beta<sub>2</sub>-phase and that with increased Ti content the beta-phase does a better job than the beta<sub>2</sub>-phase in hindering the advancement of a brittle crack. Three figures, two tables, five bibliographic references.

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Miscellaneous

USSR

UDC 620.186:669.018.58

LIVSHITS, B. G., IZGORODIN, A. K., NIKOLAYEVA, V. N., TSVILING, M. Ya. and KLYCHEVA, V. A., Moscow Institute of Steel and Alloys

"Study of the Kinetics of Gamma-Phase Formation in YuNDK35T5-Type Alloys at 830-900°C"

Moscow, Metallovedeniye i termicheskaya obrabotka metallov, No 6, 1972, pp 65-66

Abstract: The study was conducted on cast alloys quenched to a mono  $\beta_2$ -phase from 1240°C. The quenched specimens were put through low-temperature isothermal treatment at 900, 870, 850, 840, and 830°C. The holding times for each temperature were 15, 25, 45, 60, and 130 min, respectively. The specimens were cooled in open air. The amount and kinetics of the phase separation were determined in 50 fields of vision by Glagolev's method. Titanium is shown to promote intensive  $\beta_1$ -phase separation (up to 950°C), which is undesirable from the viewpoint of low-temperature treatment. Microstructural analytical data indicate that the reduction of Al content from 3 to 7% intensifies  $\beta_2 \rightarrow \beta_1 + \beta_2$  transformation at all test temperatures. Noteworthy is the fact that the reduction of Al content to 7% markedly affects the decomposition kinetics at 900-870°C but much less at 840 and 830°C. The results of the study have shown that low-temperature treatment of YuNDK35T5 alloys must be conducted at minimum temperatures and minimum possible hold times. An increase in Ti

USSR

LIVSHITS, B. G., et al., Metallovedeniye i termicheskaya obrabotka metallov,  
No 6, 1972, pp 65-66

contents and a reduction of Al contents inhibit low-temperature treatment.  
(1 table, 8 bibliographic references)

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USSR

LEVSHITS, B. G., IZGORODIN, A. K., NIKOLAYEVA, V. N., and KOVILIN, N. YA.

"The Effect of Titanium on the Plasticity and Nature of Fracture of YuDM35T5-Type Alloys"

Moscow, Investiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 7, 1970, pp 116-119

Abstract: This article contains an investigation of YuDM35T5-type alloys with 4, 5, 6, and 7% Ti. The microthermal emf and microhardness of the alloys were measured in the highly coercive state in order to determine the effect of titanium on liquation. The static transverse strength and elastic-plastic bending deflection were determined. Interferometric, fractographic, and microstructural studies were made of the fractured samples. Increasing the titanium content from 4 to 7% increased the degree of liquation in the alloy and the plasticity with respect to the grain body. Increasing the titanium content in YuDM35T5-type alloys to 7% is expedient for simultaneous development of a method of improving the boundary state. An equation is derived for  $\sigma$  as a function of the titanium content in the form of a regression line.

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USSR

UDC 669.725.4

IZHIVANOV, L. A., ARTEM'YEV, V. I., and PANKRATOV, V. I.

"Preparation of Beryllium Iodide"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 5, Sep/Oct 71, pp 109-110

Abstract: Two methods were tested for the preparation of beryllium iodide: the classical method adopted for iodine refinement of zirconium, and a modification of this method with the evacuation of the vapors of iodine and undecomposed iodides, as well as the method of thermal dissociation of polymeric beryllium iodides. In experiments on the thermal dissociation of iodides on an incandescent tungsten filament, a deposit consisting of silicon with 2-5% Be was formed. The temperature of the beryllium turning was varied from room temperature to 700°, and the filament temperature was varied from 650 to 1300°. The following course of the principal process can be suggested: at the turning:  $\text{Be} + \text{I}_2 \rightarrow \text{BeI}_2$ ; on the walls of the glass ampoule, first brought to vacuum,  $2\text{BeI}_2 + \text{SiO}_2 \rightarrow 2\text{BeO} + \text{SiI}_4$ ; and at the filament:  $\text{SiI}_4 \rightarrow \text{Si} + 2\text{I}_2$ . Attempts to obtain beryllium in a metal apparatus by passing beryllium iodide vapor over an incandescent metal strip were also unsuccessful. The experiment with the filament revealed a gray crystalline deposit about 1 mm thick and weighing 0.1 g. Spectroanalysis showed that the deposit is beryllium contaminated with iron (up to 2%) and with traces of nickel and chromium. This

USSR

IZHEVANSKY, L. A., et al, Izvestiya Akademii Nauk SSSR, Metallurgiya, No 5, Sep/Oct 71, pp 109-110

contamination of beryllium is probably a consequence both of the transport of impurities from the initial metal as well as the reaction of iodides with contaminated material, in spite of the container lining.

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UDC:669.046.558.7:669.015.3

KALINNIKOV, Ye. S., EFROS, D. I., BORODETS, I. V., YABUROV, S. I., IZMANOVA, T. A., and POKROVSKIY, V. A.

"Some Properties of the Ingots of Chrome-Nickel-Molybdenum Steel Treated With Liquid Synthetic Slag and in Vacuum"

Proizvodstvo Chernykh Metallov [Production of Ferrous Metals--Collection of Works], No 75, Metallurgiya Press, 1970, pp 226-234

Translation: Three melts of structural chrome-nickel-molybdenum steel were made in a basic 50-T open hearth furnace. In the ladle, the metal of each melt was treated using one of three versions of technology:

I--refining with liquid synthetic slags;

II--evacuation in the ladle;

III--refining with liquid synthetic slag with subsequent evacuation in the ladle.

The structural and chemical heterogeneity of a 2.85-T ingot and the mechanical properties of the cast metal were studied.

The steel produced by versions I and II were distinguished by low sulfur content, 0.007 and 0.006% respectively, while type II steel had minimum hydrogen content. The structural zones of all ingots were developed practically identically. Ingots of versions I and III showed stability of

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USSR

KALINNIKOV, Ye. S., et al., Proizvodstvo Chernykh Metallov, No 75, Metallurgiya Press, 1970, pp 226-234

chemical composition both in height and in cross section. The steel treated with the synthetic slag differs from the vacuum steel in its higher mechanical properties. Vacuum treatment of the steel after treatment with synthetic slag did not cause a further increase in properties. It is established that the influence of sulfur on the development of non-axial heterogeneity and changes in the mechanical properties of cast steel is more significant than the influence of hydrogen. 7 figures; 6 tables; 6 biblio. refs.

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USSR

UDC 538.574.6

IZMAYLOV, F. F.

"Using Kirchhoff's Method for the Asymptotic Solution of the Problem of Diffraction of a Plane Wave by Dielectric Solids of Revolution"

Moscow, Antenny, No 12, 1971, pp 13-24

Abstract: The vectorized Kirchhoff formula of geometrical optics is used to relate the electromagnetic field produced by an incident plane wave passing through a radiotransparent dielectric conical shell to vectors on the internal closed conical surface. The stationary-phase method is employed to evaluate the internal surface integral on the assumption that the exponent insures rapid oscillation of the integrand. The vector amplitude components at a single observation point on the incident wave are given in terms of the plane wave transmission coefficients through an infinite plane-parallel layer for perpendicular and parallel polarization. Next, the diffraction field component at the cone apex is investigated. The Fresnel integrals are utilized in the method of stationary phase to determine 2 representative points on the surface, while their boundary becomes the cone tip. The diffraction pattern is most sharply expressed in the neighborhood of an observation point for which the radius vector is parallel to the propagation

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USSR

IZMAYLOV, F. F., Antenny, No 12, 1971, pp 13-24

vector. The results are compared with several points obtained by numerical integration in a computer, and experimental and calculated curves for the errors in determining an equisignal region for a dielectric antenna sheath are plotted. The satisfactory comparison indicates that the method could be adapted to concrete computations.

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USSR

UDC 621.372.822.09:5

NIKOL'SKIY, V.V., IZMAYLOV, E.F., FEDOSEYEV, A.P.

"Application Of Impedance Treatment To The Problem Of Diffraction For A Rectangular Waveguide"

Radiotekhnika i elektronika, Vol XVII, No 6, June 1972, pp 1305-1309

Abstract: The paper studies a projection method proposed by one of the authors [V.V. Nikol'skiy, Radiotekhnika i elektronika, 1971, 16, 7, 1120 and 8, 1342] which employs an impedance treatment, using as an example a class of problems of practical interest -- diffraction of the  $H_{10}$  wave of a rectangular waveguide at a system of bodies in the form of parallelepipeds, gyrotropic and isotropic. On the whole the results obtained confirm the legitimacy of the proposed algorithm; they are of importance also by themselves, demonstrating admissability but not having been subjected to a well-grounded experimental study as well as a calculation. 6 fig. 4 ref. Received by editors, 15 November 1971.

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**Metrology, Surveying, Mapping, Graphics**

USSR

UDC: 620.172.25

MARKOVETS, M. P., IZMAYLOV, F. I.

"A New Method for Determining Necking Down of Metallic Materials"

Moscow, Zavodskaya Laboratoriya, No. 9, 1971, pp 1135-1138

Abstract: A method is described for determining the transverse reduction in area of metallic materials during sclerometric hardness tests, and a sequence is suggested for calculation of the values of  $\psi$ . It is demonstrated that there is a stable relationship between the values of  $\psi$  determined by the method suggested and by the method of extension for different types of steel.

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USSR

UDC: 669.18:66.011.56

TREYSTER, Yu. Ya., IZMAYLOV, G. A., KLESHKO, O. B., KRASHNOV, B. I.,  
PIROZHENIKOV, V. Ye., All-Union Scientific Research Institute of Automation of  
Ferrous Metallurgy

"New Developments in the Automation of Steel Smelting Production"

Moscow, Metallurg, No 6, 1973, pp 21-24

Abstract: This article deals with new processes for the automation of steel production in accordance with the statement of the Central Committee of the Communist Party that implementation of the complex automation of technological processes is one of the decisive factors in the successful fulfillment of technical-economic aims. The All-Union Scientific Research Institute of Automation of Ferrous Metallurgy (VNIIAChernmet) has done much to automate converters, various installations for continuous pouring of steel, arc steel smelting ovens, and electroslag remelting. A dynamic system for controlling the converter process has been put into use in the Chelyabinsk Metallurgical Plant; the block diagram of the operating algorithm for this system is reproduced and explained. The demand for continuous pouring of steel is being satisfied by an automatic system of continuous pouring using an all-purpose computer for controlling the converter shop of the "Azovstal'" metallurgical

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USSR

TREYSTER, Yu. Ya., et al., Metallurg, No 6, 1973, pp 21-24

plant. This system was developed by VNIIschermet in cooperation with the Ul'yanovsk State Pedagogical Institute "Metallurgavtomatika." The structural diagram for the system is also given. Other achievements in the field of automatic control of metallurgical production are cited and described.

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1/2 018 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--AUTOMATIC CONTROL OF THE PARAMETERS OF OXYGEN CONVERTER MELTING -U-  
AUTHOR--(05)--BEYTELMAN, L.S., BELENKIY, YU.YA., IZMAYLOV, G.A., YERMOLAYEV,  
D.A., KULKOV, S.V.  
COUNTRY OF INFO--USSR  
SOURCE--STAL' 1970, 30(3), 225-8  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR  
TOPIC TAGS--METAL OXYGEN CONVERTER, METAL MELTING, AUTOMATIC CONTROL  
SYSTEM, STEEL MANUFACTURE PROCESS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1996/1993 STEP NO--UR/0133/70/030/003/0225/0228  
CIRC ACCESSION NO--AP0118952  
UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0118952

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A SCHEME OF AN AUTOMATIC CONTROL IS PRESENTED, IN WHICH ALL MAJOR PARAMETERS OF BLOWING ARE CONTROLLED AS A FUNCTION OF GAS VOL. AND ITS CO SUB2 CONTENT. INDUSTRIAL TRIALS SHOWED THE VELOCITY AND ACCURACY OF THE SYSTEM SUFFICIENT FOR THE PRODUCTION OF THE DESIRED BLOWN METAL.

UNCLASSIFIED

USSR

UDC: 538.383

GAVRILOV, A. N., CHIZHIKOV, V. Yu., IZMAYLOV, Ye. A., Moscow Aviation Institute imeni S. Ordzhonikidze

"Analytical Description of the Spatial Distribution of Scattering of the Magnetic Field of a Gyromotor"

Leningrad, Izvestiya VUZov: Priborostroyeniye, Vol 16, No 2, 1973, pp 88-94

Abstract: Analytical expressions are found which approximate the actual distribution of the scattering field of a gyromotor. It is shown that the scattering field of a specific gyroscopic element can be determined by using selected analytical expressions and making just a few measurements at nodal points in space. The resultant formulas can be used for calculating the extent to which the scattering field of a gyromotor affects the output characteristics of a floating gyroscopic device.

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USSR

UDC 629.7.036.54-66:536.46

IVANOV, B. I., IZMAYLOV, YE. M., NARKUNSKIY, S. YE., NIKONOV, A. P., and  
PLESHAKOV, V. F.

"Limit Conditions for the Propagation of Combustion Along Metal Specimens in  
Gaseous Oxygen"

Moscow, Gorennye i Vzryv -- Sbornik (Combustion and Explosion -- Collection of  
Works), Nauka, 1972, pp 148-152 (from Referativnyy Zhurnal -- Aviatsionnyye i  
Raketnyye Dvigateli, No 2, 1973, Abstract No 2.34. 148. Resume)

Translation: Measurements are made of the propagation rate of combustion and  
the minimum oxygen pressure at which the propagation of combustion takes place,  
for cylindrical specimens of steels Kh18N9T and 3Kh13, copper-containing iron,  
and low-carbon steel. The oxygen pressure was varied from 1 to 400 technical  
atmospheres, the velocity of the external stream of oxygen was varied from 0 to  
100 m/sec, the diameter of the specimen varied between 1.2 and 6.0 mm. The  
experimental data are in good agreement with a model in which combustion on the  
surface of a liquid drop of metal is controlled by the diffusion of oxygen  
through a gas, and confirms the assumption of independence of the limit (minimum)

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USSR

IVANOV, B. I., et al., Goreniye i Vzryv -- Sbornik, Nauka, 1972, pp 148-152  
(from Referativnyy Zhurnal -- Aviatsionnyye i Raketnyye Dvigateli, No 2, 1973,  
Abstract No 2.34. 148. Resume)

density of the heat flux required for the maintenance of combustion from the  
pressure, the specimen diameter, and the velocity of the gas stream. 4 figures.  
6 references.

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USSR

UDC 547.26'118:541.49

KURAMSHIN, I. Ya., MURATOVA, A. A., YARKOVA, E. G., MUSINA, A. A., IZMAYLOVA, F. Kh., and PUDOVIK, A. N., Kazan' State University imeni V. I. Ul'yanov-Lenin

"S-Alkyl Esters of the Thio- and Dithioacids of Phosphorus (IV) and Their Complexes With Tin"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 7, Jul 73, pp 1456-1466

Abstract: A series of thio- and dithioesters of thiophosphoric and thio- and dithiophosphinic acids was synthesized and characterized. Their IR and NMR spectra were studied. It was shown that the conformational isomerism in S-methyldialkylthio- and dithiophosphinates is caused by the P-C bond rotation. Complexes of S-alkylthiophosphates and thiophosphinates with tin tetra- and alkylhalides were obtained. Their IR and NMR spectra were studied. It was shown that in solutions the complexes  $[R_2P(O)(SCH_3)]_2SnX_4$  exist as mixtures of geometrical isomers. It was shown that with coordination, a redistribution of the electronic density of the P-S bond takes place on account of the inductive and mesomeric effects. Both in the free state and as complexes the thioesters  $R_2P(O)(SR')$  exhibit conformational isomerism. Based on the IR and NMR data, the electron donor ability of S-methyldialkyl-dithiophosphinates in relationship to tin halides was analyzed.

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USSR

UDC 613.63+615.9:631.542.25

IZMAYLOVA, G. D., Tashkent Medical Institute

"Materials on Hygienic and Toxicological Characteristics of Acrofol -- a New Defoliant Agent"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 6, Jun 72, pp 48-50

Abstract: Acrofol is the sodium salt of cis-3-chloroacrylic acid obtained by Favorskii rearrangement from trichloroacetone and sodium bicarbonate. The material was studied in respect to its hygienic and toxicological characteristics. The agent was found in the air during its preparation, the highest concentrations being around the filtration operations, followed by the drying process, grinding, and packaging. The workers exposed to this agent showed highest arterial pressure, higher pulse rate, and lower content of sulfhydryl groups in the blood. When sprayed on cotton, no acrofol was noted after 24 hrs in air, and none after 3 days in the wash water. The compound is considered to be of average toxicity, LD<sub>50</sub> for the rats being 520 mg/kg, for mice -- 595 mg/kg, and for rabbits -- 400 mg/kg. It is capable of penetrating undamaged skin and eye membrane. Chronic application at a dose of 26.3 mg/m<sup>3</sup> showed a loss in appetite, excitability, loss of fur, the symptoms vanishing after 1.5-2 months. At a 5 mg/m<sup>3</sup> dose no clinically manifested changes could be noted.

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1/2 028 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--DETERMINATION OF THE AMOUNT OF HYDROGEN IN CATALYSTS AT HIGH  
TEMPERATURES BY THE HYDROGENATION OF ETHYLENE -U-  
AUTHOR--(05)-IZMAYLOV, R.I., FEDOROV, G.I., KHAYRULLINA, R.Z., BORISOVA,  
V.V., DAVLESUPOVA, R.G.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (2), 369-72  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--HYDROGEN, HYDROGENATION, ISOMERIZATION, HYDROCARBON,  
PALLADIUM, NICKEL, CATALYST, SORPTION, HIGH TEMPERATURE EFFECT,  
ETHYLENE, PLATINUM, CHROMATOGRAPHY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1997/0639 STEP NO--UR/0062/70/000/002/0369/0372  
CIRC ACCESSION NO--AP0119551  
UNCLASSIFIED

2/2 028

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0119551

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A DETAILED DESCRIPTION IS GIVEN FOR THE CONSTRUCTION AND OPERATION OF APP. FOR DETG. SORBED H AT 150-500DEGREES, I.E. UNDER CONDITIONS USUALLY USED FOR HYDROGENATION AND ISOMERIZATION REACTIONS OF HYDROCARBONS. THE APP. CONSISTS OF A REACTION VESSEL CONTG. A 2-3 MG SAMPLE OF THE CATALYST BEING TESTED, PLACED IN A FLOW SYSTEM SIMILAR TO THAT OF A CHROMATOGRAPH AND PROVIDED WITH SWITCHABLE SOURCES OF ARGON, H, AND C SUB2 H SUB4. THE AMT. OF SORBED H ON 12 TYPICAL PT, PD AND NI CATALYSTS ON VARIOUS SUPPORTS WAS TABULATED AS WAS THE INFORMATION OF SORPTION OF H AT VARIOUS TEMPS. ON PT AND NI AND PD CATALYSTS UP TO 500DEGREES. PROMOTION BY SALTS OF MN AND CR ENHANCES THE STRENGTH OF BONDING OF H TO THE METAL.  
FACILITY: INST. ORG. FIZ. KHIM. IM. ARBUZOVA, KAZAN, USSR.

UNCLASSIFIED

USSR

UDC 537.226+537:311:33]:[537+535]

IGLAMOVA, R. I., IZMAYLOV, S. V.

"Determining Special Features of Location of Energy Zones in a Semiconductor From Dependence of Photocurrent on the Spectrum"

XXIII Gertsenovsk. chteniya. Mezhvuz. konferentsiya. Teor. fiz. i astron. Kratk. soderzh. dokl., [23rd Hercene Readings. Inter-University Conference. Theory of Physics and Astronomy. Brief Contents of Reports -- Collection of Works], Leningrad, 1970, pp 10-13, (Translated from Referativnyy Zhurnal Fizika, No 10, 1970, Abstract No 10 Ye 1053 by E. Zak).

Translation: A simplified model of a semiconductor with several energy zones is studied (conductivity zone and two filled zones). Analysis is performed into the nature of the change in the variation of quantum yield of photocurrent  $J(h\nu)$  with the spectrum, allowing information to be produced on the location of energy zones in the semiconductor. If the filled zones do not overlap, there should be a plateau on the curve of  $J(h\nu)$ ; with overlap, the zones of the curve have a break point. The results of works studying photoemission are discussed on the basis of these considerations.

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ATO033239

4R0020

USSR

JPRS 50083  
UDC 532.74

VERTMAN, A. A., IZMAYLOV, V. A. and SAMARIN, A. M., Academician

"Centrifuging of Siluminum in the Liquid State"

Moscow, Doklady Akademii Nauk SSSR, Vol. 190, No. 2, 1970, pp 313-314

Abstract: An alloy of aluminum and silicon was centrifuged in a high-temperature vacuum device in order to obtain information on the structure of the alloy. The siluminum samples were centrifuged at temperatures of 700 and 850°C. The samples were analyzed for silicon content by a weighing method along the longitudinal axis. The distribution of silicon in the samples of both series is graphed. Analysis shows that the effect of crystallization on the separation of the components of the alloy in the centrifuged field was slight under these experimental conditions. Increasing the temperature from 700 to 850° reduced the degree of separation of the components

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of the aluminum-silicon system. It is concluded that this effect is possible only if one assumes the presence in the Al-Si system of dynamic subgroups enriched by one of the components of dimension  $r = 10-50 \text{ \AA}$ . These results should be considered in studying the modification and crystallization of silumins.

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UDC 532.74

VERTMAN, A. A., IZMAYLOV, V. A. and SAMARIN, A. M., Academician

"Centrifuging of Siluminum in the Liquid State"

Moscow, Doklady Akademii Nauk SSSR, Vol. 190, No. 2, 1970, pp 313-314

Abstract: An alloy of aluminum and silicon was centrifuged in a high-temperature vacuum device in order to obtain information on the structure of the alloy. The siluminum samples were centrifuged at temperatures of 700 and 850°C. The samples were analyzed for silicon content by a weighing method along the longitudinal axis. The distribution of silicon in the samples of both series is graphed. Analysis shows that the effect of crystallization on the separation of the components of the alloy in the centrifuged field was slight under these experimental conditions. Increasing the temperature from 700 to 850° reduced the degree of separation of the components of the aluminum-silicon system. It is concluded that this effect is possible only if one assumes the presence in the Al-Si system of dynamic subgroups enriched by one of the components of dimension  $r = 10-50 \text{ \AA}$ . These results should be considered in studying the modification and crystallization of silumins.

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UDC: 531.383

GAVRILOV, A. N., CHIZHIKOV, V. Yu., and IZMAYLOV, Ye. A.

"Experimental Investigation of Magnetic Field Dispersion in a Gyromotor"

Leningrad, Priborostroyeniye, No 4, 1972, pp 122-128

Abstract: Because the magnetic field in a gyromotor may create a moment that affects the rotation of the output axis of the instrument and may distort the signal of induction sensors used in gyroscopes, this paper proposes a method of experimentally determining the distribution of the dispersion field and presents the results of an experiment conducted with a floating gyro unit containing a motor. The unit was hermetically sealed in an aluminum casing, the ring of the motor was also made of an aluminum alloy while its active part was of the Vicalloy type. A diagram of the experimental equipment is given, the procedure is explained, and the method of measurement detailed. This last involves the use of three coils placed in the three mutually perpendicular planes, in each of which a voltage is induced by the magnetic field. Plots of the dispersion field of the gyromotor are given. The authors are connected with the S. Ordzhonikidze Moscow Aviation Institute.

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5/2 . 021 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--ACYL PEROXIDES. XXVIII. REACTIONS OF VALEROYL AND CAPROYL  
PEROXIDES WITH MERCUROUS SALTS -U-  
AUTHOR-(04)-OLDEKOP; YU.A., MAYER, N.A., PSHENICHNYY, V.N., IZMAYLOVA,  
A.F.  
COUNTRY OF INFO--USSR I  
SOURCE--ZH. OBSHCH. KHIM. 1970, 40(2), 308-11  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ORGANIC PEROXIDE, ORGANOMERCURY COMPOUND, THERMAL  
DECOMPOSITION, BUTANE, BUTENE, HEAT EFFECT  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1985/1408 STEP NO--UR/0079/70/040/002/0308/0311  
CIRC ACCESSION NO--AP0101498  
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0101498

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HEATING VALEROYL PEROXIDE (I) WITH MERCUROUS VALERATE OR BENZOATE IN C SUB6 H SUB6 AT 80DEGREES OR IN BUCO SUB2 H (AT 98DEGREES), OR HEATING CAPROYL PEROXIDE (III) IN MERCUROUS CAPROATE OR BENZOATE IN C SUB6 H SUB6 OR IN CAPROIC ACID, RESULTED LARGELY IN FORMATION OF 30 TO 40PERCENT HG AND UP TO 32PERCENT CORRESPONDING ALKYL MERCURY SALTS. ALSO FORMED WERE CO SUB2, THE ALKANE AND ALKENE CORRESPONDING TO THE RADICAL OF THE PEROXIDE EMPLOYED, WITH CO, AND MERCUROUS SALTS. THE NEEDED MERCUROUS VALERATE WAS PREPD. FROM MERCUROUS NITRATE AND NA VALERATE IN AQ. MEDIUM. THUS, THE REACTION OF THE RADICALS R TIMES FROM THE PEROXIDE WITH MERCUROUS ACYLATES YIELD RHGO SUB2 CR'. REACTION OF I WITH THE MERCUROUS SALTS GAVE BUHG SALTS, INDICATING THAT THE BU TMES RADICALS FORMED IN THE PEROXIDIC DECOMP. ARE ABLE TO REACT WITH MERCUROUS SALTS AS INDICATED ABOVE. THESE RADICALS ALSO UNDERGO THE USUAL DISPROPORTIONATION AND CLEAVAGE OF H ATOMS FOR THE SOLVENT; IN THESE REACTIONS BUTANE GREATLY EXCEEDED BUTENES IN THE REACTION MIXT. IN REACTION OF II WITH THE MERCUROUS CAPROATE IN C SUB6 H SUB6, THE YIELD OF CO SUB2 WAS ALWAYS GREATER THAN FOUND FOR OTHER REACTIONS OF PEROXIDES WITH OTHER MERCUROUS SALTS; THE SOURCE OF THE ADDED CO SUB2 WAS MERCUROUS CAPROATE, WHICH WITH PEROXIDE GAVE CO SUB2 PLUS C SUB5 H SUB11 HGO SUB2 C SUB5 H SUB11.

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UDC 614.72:[632.964:631.542.25

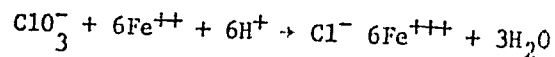
VENGERSKAYA, Kh. Ya., DEMIDENKO, N. M., MAYOROVA, T. N., and IZMAYLOVA, G. D., Tashkent Scientific-Research Institute, Tashkent Medical Institute

"Methods of Determination of Some Defoliants in Air"

Moscow, Gigiyena i Sanitariya, "Meditsina," Vol 36, No 8, Aug 71, pp 109-110

Abstract: Colorimetric and spectrophotometric analytical methods were used to detect the presence in the air of the cotton defoliants magnesium chlorate-chloride (I) --  $\text{Mg}(\text{ClO}_3)_2 \cdot \text{MgCl}_2$  -- molecular weight 191.23, a greenish mass, readily soluble in water; calcium chlorate-chloride (II) --  $\text{Ca}(\text{ClO}_3)_2 \cdot \text{CaCl}_2$  -- a yellow liquid readily mixible with water; and acrofol (III) -- the sodium salt of cis-beta-chloroacrylic acid.

A preparation in the form of a yellow powder, readily soluble in water, but poorly in organic solvents. The colorimetric determination of (I) and (II) is based on the capacity of their chlorates when boiled in an acid medium to be reduced by the ferrous ion to chlorides as follows:



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VENGERSKAYA, Kh. Ya., Gigiyena i Sanitariya, "Meditsina," Vol 36, No 8,  
Aug 71, pp 109-110

The detection of (III) is based on the formation of a colored complex as a result of the reaction of the preparation with pyridine in an alkaline medium. The spectrophotometric method of detection is accomplished with the use of a spectrophotometer and an absorbent of degreased cotton and chlorinated polyvinyl chloride filters for aerosols of (I) and (II), and an absorbent filled with distilled pyridine for the vapors of (III).

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1/2 033 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--BIOLOGICAL ACTION AND DISTRIBUTION OF TRITIUM OXIDE IN A DOG -U-  
AUTHOR--(04)-BIBIKOVA, A.F., ZHURAVLEV, V.F., IZMAILOVA, G.M., KALYAZINA,  
N.S.  
COUNTRY OF INFO--USSR  
SOURCE--RADIOBIOLOGIYA 1970, 10(2), 310  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--DOG, TRITIUM OXIDE, RADIATION SICKNESS, HEMORRHAGE, CENTRAL  
NERVOUS SYSTEM, CEREBRUM, BRAIN  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY FICHE NO----FD70/605004/B09 STEP NO--UR/0205/70/010/002/0130/0310  
CIRC ACCESSION NO--AP0139603  
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0139603

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TRITIUM OXIDE (T SUB2 O)  
INTRODUCED I.P. IN 0.15 AND 0.3 MCI-G DOSES TO DOGS CAUSED ACUTE  
RADIATION SICKNESS WITH MARKED HEMORRHAGIC SYNDROME AND IRRITATION OF  
THE CENTRAL NERVOUS SYTEM. HISTOL. EXAMN. OF THE CEREBRUM REVEALED  
DIFFUSE TOXIC DAMAGE OF NEURONS AND OF NEUROGLIA. THESE EFFECTS ARE  
DIFFERENT FROM THOSE CAUSED BY EQUAL DOSES OF IONIZING RADIATION FROM AN  
EXTERNAL SOURCE. DISTRIBUTION OF T SEEMED TO BE UNIFORM THROUGHOUT ALL  
ORGANS INCLUDING THE BRAIN TISSUE. THIS RENDERS POSSIBLE THE DETN. OF  
IRRAON. DOSES AND OF THE KINETICS OF T SUB2 O ELIMINATION BASED ON  
CHANGES IN THE BLOOD LEVEL. FACILITY: INST. BIOFIZ., MOSCOW,  
USSR.

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UDC 678.762.3-134.535.002.612

DEVIRTS, E. YA., IZMAYLOVA, L. V., and MOYSEYEV, V. V.

"Properties of an Isoprene-Nitrile Copolymer"

Moscow, Kauchuk i Rezina, No 12, 1972, pp 22-23

Abstract: A copolymer of isoprene and acrylonitrile (copolymer-30) is compared with another copolymer (copolymer-26m). Copolymer-30 has much less stability than copolymer-26m toward rolling at high temperatures, though at lower temperatures their stability is similar. An essential advantage of mixtures based on copolymer-30 over copolymer-26m is in the higher adhesion. The rates of vulcanization of both are similar unfilled rubber from copolymer-30 has high tensile strength and is comparable to unfilled from isoprene rubber.

Untreated rubber from copolymer-30 has a very low heat resistance, making it comparable to copolymer-26m. At room temperature the elasticity of copolymer-30 is much lower than that of copolymer-26m, at higher temperatures up to 100°C. elasticity is comparable. Noteworthy is the higher resistance to thermal aging found in untreated rubber from copolymer-30.

The elasticity of carbon black rubber from copolymer-30, is much lower than that of corresponding rubber from copolymer-26m, but when heated to 100°C

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DEVIRTS, E. YA., et al., Kauchuk i Rezina, No 12, 1972, pp 22-23

the elasticity of both is about the same. But heat resistance and resistance to thermal aging is much higher in carbon-black rubber from copolymer-30. There is also less swelling in a gasoline-benzene system(3:1). In other properties, such as tensile strength and residual deformation during pressing, the carbon-black rubbers from copolymers 30 and 26m are very similar.

Isoprene-nitrile rubbers use the same type of vulcanizing systems as do butadiene-nitrile rubbers. Also, the carbon black and the light fillers used for butadiene-nitrile rubbers can be used for copolymer-30 mixtures.

With rubber from copolymer-30 there is a significant strengthening in the presence of light, inactive fillers, surpassing copolymer 26m in such properties as resistance to tearing, relative and residual lengthening. Use of common plasticizers can increase cold resistance and elasticity in copolymer-30 mixtures, but this increase does not reach the values of plasticizer treated copolymer-26m.

The primary use of copolymer-30 will be in preparing glue and rubber mixtures of high adhesion. It can also be used for rubber manufactured articles having no need for high resistance to cold.

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1/2 024  
UNCLASSIFIED  
TITLE--IMMUNOGENICITY OF THE FRACTIONS OF PURIFIED TETANUS TOXOID ISOLATED  
WITH THE AID OF ION-EXCHANGE COLUMN -U-  
AUTHOR--IZMAYLOVA, M.K.  
COUNTRY OF INFO--USSR  
SOURCE--ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII, 1970 NR 4,  
PP 120-124  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--TETANUS TOXOID, ION EXCHANGE, CHROMATOGRAPHY, IMMUNOLOGY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1990/1468  
CIRC ACCESSION NO--AP0109528  
STEP NO--UR/0016/70/000/004/0120/0124  
UNCLASSIFIED

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PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0109528

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. IMMUNOGENICITY OF TETANUS TOXOIDS PURIFIED AND SORBED ON ALUMINUM HYDROXIDE DEPENDED ON THE EXTENT OF THEIR PURIFICATION EXPRESSED BY THE VALUE OF BU LOADING UPON 1 MG OF PROTEIN NITROGEN. THE RESULTS OF DETERMINATION OF IMMUNOGENICITY OF INDIVIDUAL FRACTIONS OF PURIFIED TETANUS TOXOIDS, ISOLATED IN CHROMATOGRAPHY ON DEAE-SEPHADEX A-25 DEMONSTRATED THAT THE PREPARATIONS WITH A HIGH BU LOAD PER 1 MG OF PROTEIN CONTAINED TWO IMMUNOGENIC FRACTIONS (I AND III), WHEREAS TOXOIDS WITH LOW LOAD INDICES, ONLY ONE (I).

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UDC 621.357.7:669.68(088.8)

KUDRYAVTSEV, N. T., KRUGLIKOV, S. S., NECHAYEV, YE. A., MEDVEDEV, G. I., IZMAY-  
LOVA, T. M.

"Method of Electrodeposition of Tin"

USSR Author's Certificate No 316750, filed 11 Dec 70, published 9 Dec 71 (from  
RZh-Khimiya, No 12, Jan 72, Abstract No 12L326P)

Translation: A procedure has been patented for electrodeposition of Sn. The procedure is distinguished by the fact that in order to obtain bright smooth deposits of Sn, 1,4-butenediol is introduced into the electrolyte, and the process takes place at 18-25°,  $D_c$  1-5 amps/dm<sup>2</sup> and with mixing of the electrolyte. The electrolyte contains 25-60 grams/liter of SnSO<sub>4</sub>, 80-100 grams/liter of H<sub>2</sub>SO<sub>4</sub>, 10-15 grams/liter of orthocresol, 3-80 mℓ/liter of 40% 1,4-butenediol, and 1-2 grams/liter of joiner's glue. Example. In an electrolyte containing 50 grams/liter of SnSO<sub>4</sub>, 90 grams/liter of H<sub>2</sub>SO<sub>4</sub>, 10 grams/liter of orthocresol, 30 mℓ/liter of 40% 1,4-butenediol and 1 gram/liter of joiner's glue, the process takes place with agitation at a temperature of 18-25° and  $D_c$  1-5 amps/dm<sup>2</sup>. The films obtained have a mirror finish with a high degree of smoothness, 1.0-1.1.

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